

## Listing of Claims

- 1 1. (Original) A caching server comprising:
  - 2 an answer cache configured to access answer information through a flat data
  - 3 structure;
  - 4 a referral cache configured to store referral information; and
  - 5 computer instructions configured to translate a domain name into DNS
  - 6 information by examining the answer cache and, responsive to the results
  - 7 of examining the answer cache, examining the referral cache.
- 1 2. (Original) The caching server of claim 1, wherein the flat data structure is a hash table.
- 1 3. (Original) The caching server of claim 1, wherein the flat data structure includes
  - 2 pointers to a tree data structure.
- 1 4. (Original) The caching server of claim 1, wherein the flat data structure includes
  - 2 pointers to a tree data structure, and the tree data structure is configured to store
  - 3 answer information and referral information.
- 1 5. (Original) The caching server of claim 1, wherein the flat data structure includes
  - 2 pointers to a tree data structure, and the tree data structure is included in the
  - 3 referral cache.
- 1 6. (Original) The caching server of claim 1, wherein the caching server is also an
  - 2 authoritative server.

1 7. (Original) The caching server of claim 1, wherein the caching server is also a web  
2 server.

1 8. (Original) The caching server of claim 1, wherein the referral cache is further  
2 configured to store the referral information in a hierarchical data structure.

1 9. (Original) The caching server of claim 1, wherein the DNS information includes an IP  
2 address.

1 10. (Original) The caching server of claim 1, wherein the DNS information includes an  
2 MX record.

1 11. (Original) A computer readable medium having stored thereupon computer code  
2 configured to determine DNS information associated with a domain name, the  
3 computer code comprising:  
4 a code segment configured to receive a request for the DNS information  
5 corresponding to a domain name;  
6 a code segment configured to examine a first cache to find the DNS information,  
7 the first cache including a flat data structure and configured to store the  
8 DNS information or a pointer to the DNS information; and  
9 a code segment configured to initiate a search of a second cache if the DNS  
10 information is not found by examining the first cache, the second cache  
11 configured to store data referring to further locations on a computer  
12 network wherein the DNS information may be found.

1 12. (Original) The computer readable medium of claim 11, wherein the DNS information  
2 includes an IP address.

1 13. (Original) A computer network comprising:  
2 means for receiving a request for DNS information corresponding to a domain  
3 name;  
4 means for examining a first cache to find the DNS information, the first cache  
5 configured to store the DNS information or a pointer to the DNS  
6 information; and  
7 means for searching a second cache if the DNS information is not found by  
8 examining the first cache, the second cache configured to store data  
9 referring to further locations on the computer network wherein the DNS  
10 information may be found.

1 14. (Original) The computer network of claim 13, further including means for storing  
2 data in the first cache such that a time required to examine the first cache is  
3 essentially constant as a function of a number of labels comprising the domain  
4 name.

1 15. (Original) The computer network of claim 13, further including means for storing  
2 data in the first cache such that a time required to examine the first cache is  
3 essentially constant as a function of a size of the first cache.

1 16. (Original) The computer network of claim 14, wherein the DNS information includes  
2 an IP address.

1 17. (Original) A computer network comprising:  
2 a computing system configured to access a component of the computer network  
3 using a domain name;  
4 a caching server including a first data structure configured for translating the  
5 domain name into DNS information, and means for examining the first  
6 data structure in a time that is essentially constant as a function of a  
7 number of labels comprising the domain name; and  
8 a second data structure configured for translating the domain name into DNS  
9 information.

1 18. (Original) The computer network of claim 17, wherein the DNS information includes  
2 an IP address or an MX record.

1 19. (Original) A method of determining DNS information, the method comprising:  
2 receiving a request for DNS information corresponding to a domain name;  
3 examining an answer cache for answer information, the answer cache including a  
4 hash table configured to store the answer information or to store a pointer  
5 to the answer information; and  
6 searching a tree data structure if the DNS information is not found by examining  
7 the answer cache.

1 20. (Original) The method of claim 19, wherein the hash table is configured to store the  
2 pointer to the answer information.

1 21. (Original) The method of claim 19, wherein the answer cache does not include a tree  
2 data structure.

1 22. (Original) The method of claim 19, wherein the tree data structure is configured to  
2 store referral data and is included in a referral cache.

1 23. (Original) The method of claim 19, wherein the tree data structure is configured to  
2 store pointers to referral data.

1 24. (Original) The method of claim 19, wherein the DNS information includes an IP  
2 address.

1 25. (Original) The method of claim 19, wherein the hash table is configured to store the  
2 answer information.

1 26. (Original) A method of determining DNS information, the method comprising:  
2 receiving a request for DNS information corresponding to a domain name;  
3 examining an answer cache to find answer information, responsive to the received  
4 request, the answer cache including a flat data structure; and  
5 responsive to the examination of the answer cache, searching a referral cache.

- 1 27. (Original) The method of claim 26 wherein the flat data structure is configured to  
2 store the answer information.
- 1 28. (Original) The method of claim 26, wherein the flat data structure is configured to  
2 store a pointer to the answer information.
- 1 29. (Original) The method of claim 26, wherein the flat data structure is a hash table.
- 1 30. (Original) The method of claim 26, wherein a time required to examine the answer  
2 cache is essentially constant as a function of a number of labels comprising the  
3 domain name and essentially constant as a function of a size of the answer cache.
- 1 31. (Original) The method of claim 26, wherein the referral cache includes a hierarchical  
2 data structure.
- 1 32. (Original) The method of claim 26, wherein the DNS information includes an IP  
2 address.
- 1 33. (Original) A method of storing data in a cache, the method comprising:  
2 requesting DNS information;  
3 receiving data in response to the request;  
4 classifying the response received; and  
5 storing the data received in either a referral cache or an answer cache based on the  
6 classification.

1 34. (Original) The method of claim 33, wherein the answer cache includes a flat data  
2 structure.

1 35. (Original) The method of claim 33, wherein the answer cache includes a hash table.

1 36. (Original) The method of claim 33, wherein the response received is stored in a  
2 caching server.

1 37. (Original) The method of claim 33, wherein the DNS information includes a  
2 numerical address.

1 38. (Original) The method of claim 33, wherein the answer cache is configured to store  
2 answer information and the referral cache is configured to store referral  
3 information.

1 39. (Original) The method of claim 33, wherein the answer cache is configured to store  
2 answer information and the referral cache is configured to store referral  
3 information, and the answer cache and the referral cache have different data,  
4 structures.

1 40. (Original) A method of caching DNS information, the method comprising:  
2 requesting DNS information;  
3 receiving data in response to requesting DNS information;  
4 classifying the response received as an answer response or a referral response;

5 storing the response received in either a referral cache or an answer cache based  
6 on the classification, the answer cache including a flat data structure;  
7 receiving a request for DNS information corresponding to a domain name;  
8 examining the answer cache to find answer information, responsive to the  
9 received request; and  
10 responsive to the examination of the answer cache, searching the referral cache.

1 41. (Original) The method of claim 40, wherein the referral cache includes a hierarchical  
2 data structure.

1 42. (Original) The method of claim 40, wherein the received request for DNS information  
2 includes a request for an IP address.